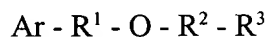


148 (New). A method of inducing antibodies against an antigen in an individual comprising the steps of:

injecting into tissue of said individual at a site on said individual's body, a DNA molecule and a polynucleotide function enhancer,

① said DNA molecule comprising a DNA sequence that encodes an antigen, said DNA sequence operatively linked to regulatory sequences which control the expression of said DNA sequence,

said polynucleotide function enhancer is a compound having one of the following formulae:



or



or



or



wherein:

Ar is benzene, *p*-aminobenzene, *m*-aminobenzene, *o*-aminobenzene, substituted benzene, substituted *p*-aminobenzene, substituted *m*-aminobenzene, substituted *o*-aminobenzene, wherein the amino group in the aminobenzene compounds can be amino, C<sub>1</sub>-C<sub>5</sub> alkylamine, C<sub>1</sub>-

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C<sub>5</sub>, C<sub>1</sub>-C<sub>5</sub> dialkylamine and substitutions in substituted compounds are halogen, C<sub>1</sub>-C<sub>5</sub> alkyl and C<sub>1</sub>-C<sub>5</sub> alkoxy;

R<sup>1</sup> is C=O;

R<sup>2</sup> is C<sub>1</sub>-C<sub>10</sub> alkyl including branched alkyls;

R<sup>3</sup> is hydrogen, amine, C<sub>1</sub>-C<sub>5</sub> alkylamine, C<sub>1</sub>-C<sub>5</sub>, C<sub>1</sub>-C<sub>5</sub> dialkylamine;

R<sup>2</sup> + R<sup>3</sup> can form a cyclic alkyl, a C<sub>1</sub>-C<sub>10</sub> alkyl substituted cyclic alkyl, a cyclic aliphatic amine, a C<sub>1</sub>-C<sub>10</sub> alkyl substituted cyclic aliphatic amine, a heterocycle, a C<sub>1</sub>-C<sub>10</sub> alkyl substituted heterocycle including a C<sub>1</sub>-C<sub>10</sub> alkyl N-substituted heterocycle;

R<sup>4</sup> is Ar, R<sup>2</sup> or C<sub>1</sub>-C<sub>5</sub> alkoxy, a cyclic alkyl, a C<sub>1</sub>-C<sub>10</sub> alkyl substituted cyclic alkyl, a cyclic aliphatic amine, a C<sub>1</sub>-C<sub>10</sub> alkyl substituted cyclic aliphatic amine, a heterocycle, a C<sub>1</sub>-C<sub>10</sub> alkyl substituted heterocycle and a C<sub>1</sub>-C<sub>10</sub> alkoxy substituted heterocycle including a C<sub>1</sub>-C<sub>10</sub> alkyl N-substituted heterocycle;

R<sup>5</sup> is C=NH;

R<sup>6</sup> is Ar, R<sup>2</sup> or C<sub>1</sub>-C<sub>5</sub> alkoxy, a cyclic alkyl, a C<sub>1</sub>-C<sub>10</sub> alkyl substituted cyclic alkyl, a cyclic aliphatic amine, a C<sub>1</sub>-C<sub>10</sub> alkyl substituted cyclic aliphatic amine, a heterocycle, a C<sub>1</sub>-C<sub>10</sub> alkyl substituted heterocycle and a C<sub>1</sub>-C<sub>10</sub> alkoxy substituted heterocycle including a C<sub>1</sub>-C<sub>10</sub> alkyl N-substituted heterocycle; and,

R<sup>7</sup> is Ar, R<sup>2</sup> or C<sub>1</sub>-C<sub>5</sub> alkoxy, a cyclic alkyl, a C<sub>1</sub>-C<sub>10</sub> alkyl substituted cyclic alkyl, a cyclic aliphatic amine, a C<sub>1</sub>-C<sub>10</sub> alkyl substituted cyclic aliphatic amine, a heterocycle, a C<sub>1</sub>-C<sub>10</sub>

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alkyl substituted heterocycle and a C<sub>1</sub>-C<sub>10</sub> alkoxy substituted heterocycle including a C<sub>1</sub>-C<sub>10</sub> alkyl N-substituted heterocycle; and;

wherein said DNA molecule is taken up by cells in said tissue, said DNA sequence is expressed in said cells and an immune response is generated against said antigen.

①  
**149 (New).** The method of claim 148 wherein said polynucleotide function enhancer is a compound having the formula Ar - R<sup>1</sup> - O - R<sup>2</sup> - R<sup>3</sup>.

**150 (New).** The method of claim 148 wherein said DNA molecule is a plasmid.

**151 (New).** The method of claim 148 wherein said antigen is an intracellular pathogen antigen.

**152 (New).** The method of claim 148 wherein said antigen is a viral antigen.

**153 (New).** The method of claim 152 wherein said viral antigen is of a virus selected from the group consisting of: human immunodeficiency virus, HIV; human T cell leukemia virus, HTLV; influenza virus; hepatitis A virus; hepatitis B virus; hepatitis C virus; human papilloma virus, HPV; Herpes simplex 1 virus, HSV1; Herpes simplex 2 virus, HSV2; Cytomegalovirus, CMV; Epstein-Barr virus, EBR; rhinovirus; and, coronavirus.

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**154 (New).** The method of claim 148 wherein said tissue includes skin and muscle.

**155 (New).** The method of claim 154 wherein said tissue is skin.

*Dis  
view*  
**156 (New).** The method of claim 154 wherein said tissue is muscle.

**157 (New).** The method of claim 156 wherein said tissue is skeletal muscle.

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### **REMARKS**

#### **Status of the Claims**

Claims 58, 59, 63, 64, 67-72, 75, 76, 84-86, 94-96, and 115-147 are in the application. By way of this amendment, new claims 148-157 are added. Upon entry of the amendment, claims 58, 59, 63, 64, 67-72, 75, 76, 84-86, 94-96, and 115-157 will be pending.

#### **Summary of the Amendment**

New claims 122-147 have been added to specifically define several embodiments of the invention; in particular as related to methods of inducing antibody generation against an antigen. Support for the new claims can be found throughout the specification. No new matter has been added.